

CLAIMS

1. A viscosity modifier for a thermoplastic polyester resin comprising 100 parts by weight of polymer particles prepared by suspension polymerization having a glass transition temperature of at least 60°C and volume average particle size of 50 to 500 μm , which are coated with 0.5 to 30 parts by weight of an emulsion polymer prepared by emulsion polymerization;
wherein said polymer particles prepared by suspension polymerization have reactivity with thermoplastic polyester resin.

2. The viscosity modifier for a thermoplastic polyester resin of Claim 1, wherein said polymer particles prepared by suspension polymerization having reactivity with thermoplastic polyester resin contains at least one reactive group selected from the group consisting of an epoxy group, a hydroxy group, a carboxyl group, an alkoxy group, an isocyanate group, an acid anhydride group and an acyl chloride group.

3. The viscosity modifier for a thermoplastic polyester resin of Claim 1 or 2, wherein said polymer particles prepared by suspension polymerization having reactivity are obtained by polymerizing
(a) 15 to 100 % by weight of (meth)acrylate containing an epoxy group and
(b) 0 to 85 % by weight of a vinyl monomer copolymerizable therewith
[(a) and (b) total 100 % by weight]; and
have weight average molecular weight of 1,000 to 400,000.

4. The viscosity modifier for a thermoplastic polyester resin of Claim 1, 2 or 3, wherein said polymer particles prepared by suspension polymerization having reactivity are obtained by polymerizing
(a) 15 to 95 % by weight of (meth)acrylate containing an epoxy group
5 (b) 5 to 85 % by weight of another alkyl (meth)acrylate and
(c) 0 to 80 % by weight of a vinyl monomer copolymerizable therewith
[(a), (b) and (c) total 100 % by weight]; and
have weight average molecular weight of 40,000 to 150,000.

10 5. The viscosity modifier for a thermoplastic polyester resin of Claim 1, 2 or 3, wherein said polymer particles prepared by suspension polymerization having reactivity are obtained by polymerizing
(a) 15 to 95 % by weight of (meth)acrylate containing an epoxy group
(b) 5 to 85 % by weight of an aromatic vinyl monomer and
15 (c) 0 to 80 % by weight of a vinyl monomer copolymerizable therewith
[(a), (b) and (c) total 100 % by weight]; and
have weight average molecular weight of 40,000 to 150,000.

6. The viscosity modifier for a thermoplastic polyester resin of
20 Claim 1, 2, 3, 4 or 5, wherein the refractive index of said polymer particles prepared by suspension polymerization having reactivity is 1.55 to 1.58.

7. The viscosity modifier for a thermoplastic polyester resin of
25 Claim 1, 2, 3, 4, 5 or 6, wherein the Vicat softening temperature of said emulsion polymer prepared by emulsion polymerization is at least 80°C.

8. The viscosity modifier for a thermoplastic polyester resin of Claim 1, 2, 3, 4, 5, 6 or 7, wherein said emulsion polymer prepared by emulsion polymerization is a polymer obtained by adding and polymerizing 5 to 40 parts by weight of a mixture comprising 20 to 80 %
5 by weight of at least one monomer selected from the group consisting of alkyl acrylates and alkyl methacrylates excluding methyl methacrylate, 20 to 80 % by weight of methyl methacrylate and 0 to 20 % by weight of a vinyl monomer copolymerizable therewith,
in the presence of a latex of a polymer obtained by emulsion
10 polymerizing 60 to 95 parts by weight of a mixture comprising 50 to 95 % by weight of methyl methacrylate, 5 to 50 % by weight of alkyl methacrylate containing an alkyl group having 2 to 8 carbon atoms and 0 to 20 % by weight of a vinyl monomer copolymerizable therewith,
so that the total amount becomes 100 parts by weight.

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9. The viscosity modifier for a thermoplastic polyester resin of Claim 1, 2, 3, 4, 5, 6, 7 or 8, wherein said emulsion polymer prepared by emulsion polymerization has a structure of at least 3 layers obtained by polymerizing a monomer mixture comprising alkyl (meth)acrylate and a
20 copolymerizable monomer, in the presence of a 2 layer polymer obtained by polymerizing a mixture comprising alkyl acrylate, a copolymerizable monomer and a crosslinkable monomer in the presence of a polymer obtained by polymerizing methyl methacrylate, a copolymerizable monomer and a crosslinkable monomer.

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10. The viscosity modifier for a thermoplastic polyester resin of Claim 1, 2, 3, 4, 5, 6, 7, 8 or 9, wherein said emulsion polymer

prepared by emulsion polymerization is a core-shell graft copolymer comprising

- (a) 40 to 90 part by weight of a core of butadiene copolymer obtained by polymerizing a monomer mixture comprising 30 to 100 % by weight of a butadiene monomer, 0 to 70 % by weight of an aromatic vinyl monomer, 0 to 10 % by weight of a copolymerizable vinyl monomer and 0 to 5 % by weight of a crosslinkable monomer;
- (b) 5 to 40 parts by weight of an inner layer shell obtained by polymerizing a monomer mixture comprising 60 to 98 % by weight of an aromatic vinyl monomer, 2 to 40 % by weight of alkyl (meth)acrylate containing a hydroxy group or an alkoxy group and 0 to 20 % by weight of a vinyl monomer copolymerizable therewith; and
- (c) 5 to 20 parts by weight of an outer layer shell obtained by polymerizing a monomer mixture comprising 10 to 100 % by weight of an aromatic vinyl monomer, 0 to 90 % by weight of an alkyl (meth)acrylate containing an alkyl group having 1 to 8 carbon atoms and 0 to 50 % by weight of a vinyl monomer copolymerizable therewith
- [(a), (b) and (c) total 100 parts by weight].

11. A thermoplastic polyester resin composition comprising 0.1 to 50 parts by weight of the viscosity modifier for a thermoplastic polyester resin of Claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10, based on 100 parts by weight of a thermoplastic polyester resin.

12. The thermoplastic polyester resin composition of Claim 11 comprising 1 to 50 parts by weight of a core-shell graft copolymer

based on 100 parts by weight of a thermoplastic polyester resin.

13. The thermoplastic polyester resin composition of Claim 12, wherein said core-shell graft copolymer contains

5 50 to 95 parts by weight of a rubbery polymer having a glass transition temperature of at most 0°C obtained by polymerizing a monomer mixture containing 35 to 100 % by weight of a butadiene and/or alkyl acrylate monomer, 0 to 65 % by weight of an aromatic vinyl monomer, 0 to 20 % by weight of a vinyl monomer copolymerizable and 0 to 5 % by
10 weight of a multifunctional monomer as the core layer, and
5 to 50 parts by weight of a polymer obtained by polymerizing a monomer mixture containing 10 to 100 % by weight of an alkyl methacrylate monomer, 0 to 60 % by weight of an alkyl acrylate monomer, 0 to 90 % by weight of an aromatic vinyl monomer, 0 to 25 %
15 by weight of a cyanized vinyl monomer and 0 to 20 % by weight of a copolymerizable vinyl monomer as the shell layer.

14. The thermoplastic polyester resin composition of Claim 11, 12 or 13, wherein said thermoplastic polyester resin is a
20 thermoplastic polyester resin containing at least one of polyalkylene terephthalate, polyalkylene naphthalene dicarboxylate, aliphatic diol or alicyclic diol or a combination thereof and at least one unit derived from a dibasic acid.

25 15. The thermoplastic polyester resin composition of Claim 14, wherein said polyalkylene terephthalate is polyethylene terephthalate or a copolyester containing a unit derived from ethylene

glycol or cyclohexane dimethanol and isophthalic acid.

16. The thermoplastic polyester resin composition of Claim
11, 12 or 13, wherein said thermoplastic polyester resin is a polylactic
5 resin.

17. A molded article comprising the thermoplastic polyester
resin composition of Claim 11, 12, 13, 14, 15 or 16.

10 18. The molded article of Claim 17, which is obtained by
extrusion molding.

19. The molded article of Claim 17, which is obtained by
calender molding.

15 20. The molded article of Claim 17, which is obtained by blow
molding.

21. The molded article of Claim 17, which is obtained by
20 injection molding.

22. An expanded thermoplastic polyester resin composition
containing 0.1 to 50 parts by weight of the viscosity modifier for a
thermoplastic polyester resin of Claim 1, 2, 3, 4, 5, 6, 7, 8, 9 or 10 and
25 0.1 to 20 parts by weight of a foaming agent based on 100 parts by
weight of a thermoplastic polyester resin.

23. A molded article comprising the expanded thermoplastic polyester resin composition of Claim 22.